

KLOE measurement of $BR(K_L \rightarrow \pi e \nu \gamma)$.

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The study of radiative K_L decays offers the possibility to obtain informations on kaon structure and to test predictions of the Chiral Perturbation Theory. Two different processes contribute to photon emission in $K_L \rightarrow \pi e \nu \gamma$ decay

($K_{Le3\gamma}$): the inner bremsstrahlung (IB) and the direct emission (DE). The latter is due to photon radiation from intermediate hadronic states.

To compare with theoretical predictions and present best experimental results, we measured the ratio $R = BR(K_{Le3\gamma}; E^* > 30\text{MeV}, \theta^* > 20^\circ) / BR(K_{Le3})$, where E^* and $\theta_{e\gamma}^*$ are the photon energy and the angle between electron and photon in K_L rest frame, respectively. With these cuts the theoretical predictions for R range between 0.95% and 0.99%. The DE contribution is expected to be less than 1% of IB one.

KLOE measurement benefits of the tagging technique, which consists of identifying K_L decays through the selection of $K_S \rightarrow \pi^+ \pi^-$ decay near the $e^+ e^-$ interaction point. This strategy allows to achieve an optimal background rejection, and also to measure K_L momentum with good precision. We present the results of this analysis, based on 330 pb^{-1} of data acquired during years 2001 and 2002.

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